	Application No.	Applicant(s)
Notice of Allowability	10/788,575	RAPOPORT ET AL.
	Examiner	Art Unit	
	Gregory C. Issing	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Pre Amdt A filed 2/26/04*.

2. ☒ The allowed claim(s) is/are *1-51*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 20040621

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

1.   The following is an examiner's statement of reasons for allowance: the Examiner has not found

any prior art that would render obvious the claimed method and apparatus for estimating a set of floating

ambiguities wherein (1) a matrix M is generated, the matrix being a function of a diagonal matrix Λ^{-1}

comprising the inverse wavelengths of satellites and a geometrical Jacombian matrix H whose elements

are representative of the changes in distances between the satellites and one of the receivers that would

be caused by changes in that receiver's position and time clock offset, covering at least two time

moments, (2) an LU-factorization of matrix M or a matrix inverse of M is generated, and (3) a vector N of

estimated floating ambiguities is generated as a function of a set of range residuals, a set of phase

residuals, and the LU factorization of matrix M or the matrix inverse of matrix M.

        Any comments considered necessary by applicant must be submitted no later than the payment

of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such

submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2.   Claims 1-51 are allowed. Claims 52-68 have been canceled in Preliminary Amendment A filed

2/26/04.

3.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4.   Zhodishzishky et al (6,268,824) disclose a method and apparatus for floating ambiguity resolution

for phase measurements of a plurality of satellite carrier signals similar to the instantly claimed subject

matter with the exception of the claimed generation of an LU-factorization of a matrix M1 or a matrix

inverse of matrix M1, the matrix M1 being a function of at least (1) a diagonal matrix comprising the

inverse wavelengths of the satellites and (2) a geometric Jacobian matrix representative of the changes in

the distances between the satellites and one of the receivers that would be caused by changes in that

receiver's position and time clock offset, and its subsequent use in multiple time epochs to determine a

vector having estimates for floating ambiguities.

5.   Sharpe et al (2005/0151683) disclose a carrier-phase positioning system that estimates floating

ambiguity values.

6.   Rabinowitz et al (6,373,432) disclose integer cycle ambiguity resolution in a carrier-based satellite

navigation system wherein carrier phase and code phase are tracked at first and second stations,

time/clock offsets are tracked and wherein the use of a low earth orbit satellite is used to resolve the integer cycle ambiguity.
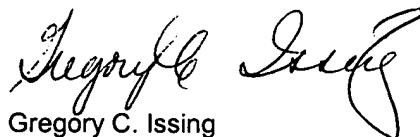
7.   Rapoport et al (6,950,059) determine rover position via the use of two fixed stations using pseudorange data, carrier phase data, satellite-phase cycle ambiguities in the form o floating form, fixed-integer form or integer plus fractional form, and sets of single difference residuals at a plurality of time moments.

8.   Shu-xin, Chen et al, "A Rapid Algorithm for GPS Ambiguity Decorrelation" IEEE 5th Int'l Conf on Intelligent Transportation Systems, 9/2002, pp. 904-909, teach a rapid algorithm for GPS ambiguity decorrelation.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregory C. Issing
Primary Examiner
Art Unit 3662

gci